

REMARKS

There are now pending in this application Claims 1-9, 12-16, and 18-25, of which Claims 1, 14, 19, and 24 are independent. Claims 10, 11, and 17 have been cancelled without prejudice or waiver of their subject matter. Claims 19-25 are newly added.

In view of the above amendments and newly presented claims, and the following remarks, favorable reconsideration and allowance of the above application are respectfully sought.

Applicants respectfully request that the Examiner accept and enter the replacement drawings submitted with this Amendment. These replacement drawings amend Figure 6 by labeling it as --Prior Art-- in accordance with the Examiner's requirement and also amend Figure 1 by changing reference numeral "14" to reference numeral --4--. The latter change corrects a clerical error in that drawing.

Applicants also submit herewith a new abstract in accordance with the Examiner's requirements. It is respectfully submitted that the new abstract is in proper form and acceptance thereof is sought.

The invention as set forth in independent Claim 1 is directed to an image heating apparatus having a heater with a metallic substrate, the heater being fixed so as not to rotate with respect to the apparatus, a holder for holding the heater, a film for moving in contact with the heater and a backup roller for defining a nip with the heater via the film. The invention is characterized in that the metallic substrate has a convex surface on a side of the nip and a concave surface on an opposite side, and the concave surface is held by the holder.

Independent Claim 14 is directed to the heater of the image heating apparatus of Claim 1.

Claim 14 was rejected under 35 U.S.C. § 102(b) as being anticipated by Suzuki, et al. Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Yano, et al. in view of Oda, et al. In view of the above amendments those rejections are respectfully traversed.

As noted above, the invention as set forth in independent Claims 1 and 14 is characterized in that the metallic substrate has a convex surface on a side of the nip and a concave surface on an opposite side, and the concave surface is held by the holder. This particular arrangement provides for an apparatus with excellent heat conductivity and good endurance of the film.

Suzuki, et al. is directed to a fixing unit for an image forming device with a heat roller that includes a hollow cylindrical tube and a resistance heating member to selectively heat portions of the tube along its axial length. Contrary to the present invention, Suzuki, et al. discloses a heat roller 10 and thus does not correspond to the present invention as recited in Claims 1 and 14 and which require a heater which is fixed so as not to rotate with respect to the apparatus. Thus, Suzuki, et al. is not understood to anticipate or even suggest the invention as recited in Claim 14.

Yano, et al. is directed to a thin film type fixing device wherein the fixing member surface has at least a resin and an ion-conductive electrical resistance value controlling material having a melting point higher than a maximum temperature in the fixing device. Yano,

et al. does not disclose a heater with a metallic substrate or one with a substrate that has a convex surface on one side and a concave surface on the opposite side.

Oda, et al. does not meet the shortcomings of Yano, et al. Oda, et al. is directed to an image fixing device which comprises a hollow cylindrical fixing roller in combination with a pressure roller. Oda, et al. does include a supporting member 58 housed within the fixing roller 30. There is a heat conductive member 48, which presumably is metallic. However, the supporting member 58 does not hold a concave surface of such a heat conductive member 48. Thus, even if the heat conductive member 48 is construed as corresponding to the metallic substrate of Claims 1 and 14, it still fails to meet the limitations of Claims 1 and 14.

For the foregoing reasons, Applicants respectfully submit that the applied art neither teaches nor suggests the invention as recited in independent Claims 1 and 14.

The invention as set forth in new Claim 19 is directed to an image heating apparatus with a non-rotating heater including a metallic substrate, a film in contact with the heater and a backup roller. The invention is characterized in that the metallic substrate has a cylindrical shape and the heater has a first insulating layer on the metallic substrate, a heat generating resistor on the first insulating layer and a second insulating layer on the heat generating resistor. Independent Claim 24 is directed to a heater for use in an image heating apparatus and incorporates the above salient features of Claim 19.

Accordingly, the invention as set forth in new Claims 19 and 24 is characterized in that a metallic substrate of a heater is fixed so as not to rotate with respect to the apparatus, has a cylindrical shape, and is constructed so as to have a first insulating layer on the metallic substrate, a heat generating resistor on the first insulating layer and a second insulating

layer on the heat generating resistor. As a result of this combination of features, the entire structure of the apparatus can be made simple.

As explained above, Suzuki, et al. discloses a heat roller which rotates and thus does not correspond to the non-rotatable heater of Claims 19 and 24. Yano, et al. discloses a substrate, but does not disclose one which has a cylindrical shape as required by those claims. Oda, et al. features a heating element 56 secured to a supporting member 58 of an elongated strip. However, the heating element 56 is not provided on a heat conductive member which has a cylindrical shape.

Applicants have also reviewed the other art of record and respectfully submit that Claims 19 and 24 are neither taught nor suggested by that art.

For the foregoing reasons, each of the independent claims in the above application is respectfully submitted to be patentable over the applied art of record. The remaining claims in the above application are dependent claims which depend either directly or indirectly from one of the above-discussed independent claims. Accordingly, each of those claims is patentable over the art of record for reasons noted above with respect to the independent claims. In addition, each recite features of the invention still further distinguishing it from the applied art. Favorable and independent consideration thereof is respectfully sought.

Applicants respectfully submit that all outstanding matters in the above application have been addressed and that this application is in condition for allowance. Favorable consideration and early passage to issue of the above application is respectfully sought.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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